

AD-A258 098



2

INTELLIGENCE PREPARATION OF THE BATTLEFIELD

(IPB):

One Size Fits All?

A Monograph  
by

Major Collin A. Agee  
Military Intelligence



DTIC  
SELECTE  
DEC 18 1992  
S B D

School of Advanced Military Studies  
United States Army Command and General Staff College  
Fort Leavenworth, Kansas

First Term AY 91-92

Approved for Public Release; Distribution is Unlimited

92-31930



92 12 18 038

REPORT DOCUMENTATION PAGE			Form Approved OMB No. 0704-0188	
<small>Note: reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188), Washington, DC 20503.</small>				
1. AGENCY USE ONLY (Leave blank)	2. REPORT DATE 10/12/91	3. REPORT TYPE AND DATES COVERED MONOGRAPH		
4. TITLE AND SUBTITLE  INTELLIGENCE PREPARATION OF THE BATTLEFIELD (IPB): ONE SIZE FITS ALL? (U)		5. FUNDING NUMBERS		
6. AUTHOR(S)  MAJ COLLIN A. AGEE, USA				
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) SCHOOL OF ADVANCED MILITARY STUDIES ATTN: ATZL-SWV FORT LEAVENWORTH, KANSAS 66027-6900 COM (913) 684-3437 AUTOVON 552-3437		8. PERFORMING ORGANIZATION REPORT NUMBER		
9. SPONSORING / MONITORING AGENCY NAME(S) AND ADDRESS(ES)		10. SPONSORING / MONITORING AGENCY REPORT NUMBER		
11. SUPPLEMENTARY NOTES				
12a. DISTRIBUTION / AVAILABILITY STATEMENT  APPROVED FOR PUBLIC RELEASE; DISTRIBUTION UNLIMITED			12b. DISTRIBUTION CODE	
13. ABSTRACT (Maximum 200 words) SEE ATTACHED				
14. SUBJECT TERMS  INTELLIGENCE IPB DECISION-MAKING PROCESS			15. NUMBER OF PAGES 70	
			16. PRICE CODE	
17. SECURITY CLASSIFICATION OF REPORT UNCLASSIFIED	18. SECURITY CLASSIFICATION OF THIS PAGE UNCLASSIFIED	19. SECURITY CLASSIFICATION OF ABSTRACT UNCLASSIFIED	20. LIMITATION OF ABSTRACT UNLIMITED	

SCHOOL OF ADVANCED MILITARY STUDIES

MONOGRAPH APPROVAL

Major Collin A. Agee

Title of Monograph: Intelligence Preparation of the Battlefield  
(IPB): One Size Fits All?

Approved by:

John D. Skelton Monograph Director  
LTC John D. Skelton, MPA

James R. McDonough Director, School of  
COL James R. McDonough, MS Advanced Military  
Studies

Philip J. Brookes Director, Graduate  
Philip J. Brookes, Ph.D. Degree Program

Accepted this 20th day of December 1991

## ABSTRACT

INTELLIGENCE PREPARATION OF THE BATTLEFIELD (IPB): ONE SIZE FITS ALL? by MAJ Collin A. Agee, USA, 70 pages.

This monograph examines the effectiveness of intelligence preparation of the battlefield (IPB) at battalion level. The U.S. Army's current warfighting doctrine, AirLand Battle, relies heavily on intelligence. For more than a decade, IPB has been the intelligence officer's methodology to conduct intelligence operations. This study defines the intelligence requirements for conducting AirLand Battle, assesses the efficacy of current IPB doctrine, and recommends changes.

This monograph first traces the evolution of the commander's need for intelligence, identifying trends toward increased size of the battlefield, proliferation of sensors to expand human powers of observation, and reduced time for decision making. By examining current doctrine, it defines the requirements levied on battalion intelligence officers (S2s), identifies contemporary criteria for effective intelligence and assesses the sufficiency of assets available to the S2.

To assess the present effectiveness of IPB, the study draws from Combat Training Center (CTC) take-home packets, Center for Army Lessons Learned (CALL) Bulletins, Desert Storm After Action Reports, and interviews with battalion commanders, staff officers and other subject matter experts.

This study concludes that battalion level IPB is inconsistently described in various doctrinal manuals, demands an unreasonable number of products and is not sufficiently integrated in practice with the rest of the staff and the commander. To address these shortfalls, the monograph makes 14 proposals under three broad categories: uniformity of doctrine, doctrinal revision and techniques.

Accession For	
NTIS GRA&I	<input checked="checked" type="checkbox"/>
DTIC TAB	<input type="checkbox"/>
Unannounced	<input type="checkbox"/>
Justification	
By	
Distribution/	
Availability Codes	
Dist	Avail and/or Special
A-1	

FTIC 11-11-82

## Table of Contents

	Page
I. Introduction . . . . .	1
II. Historical Perspective . . . . .	2
III. Theory and Doctrine . . . . .	7
IV. Resources . . . . .	16
V. Assessment of Effectiveness . . . . .	17
VI. Analysis . . . . .	23
VII. Conclusions and Implications . . . . .	38
Appendices:	
A. Combat Power Model . . . . .	41
B. IPB and the Tenets of AirLand Battle . . . . .	44
C. IPB and the AirLand Battle Imperatives . . . . .	45
D. IPB and Tactical Dynamics . . . . .	46
E. S2 Section Authorized Strengths . . . . .	47
F. Light Data Graphic . . . . .	48
G. IPB Products . . . . .	49
H. FLTP Abbreviated Command Estimate Process . . . . .	53
I. Conceptual Outline for <u>FM 100-34, Intelligence</u> . . . . .	54
Glossary . . . . .	55
Endnotes . . . . .	57
Bibliography . . . . .	65

## INTRODUCTION

From Plato to NATO the history of command in war consists essentially of an endless quest for certainty.<sup>1</sup>

Martin Van Creveld, Command in War

Know the enemy, know yourself, your victory will never be endangered.

Know the ground, know the weather; your victory will then be total.<sup>2</sup>

Sun Tzu, The Art of War

I am aware of no initiative in the last decade which has received more attention and applause than [IPB]. . . . [It] was a winner from the starting gate. It satisfies a warfighting need. It gives structure to the desperately complex business of the battlefield. It begins the process of making finite the overwhelming possibilities of enemy disposition, capabilities and intentions. Alas, it is too appealing.<sup>3</sup>

COL Mark P. Hamilton  
Commander, 6 ID (L) DIVARTY

For as long as man has waged war, he has sought an advantage over his adversary by reducing uncertainty. The age of the commander's ability to see and hear the battle for himself is long gone. The modern battlefield has grown spatially, while contracting in time, complicating decision-making for commanders.

Air-Land Battle emphasizes agility, initiative, depth and synchronization; all require effective intelligence. The intelligence officer's methodology to meet this challenge is Intelligence Preparation of the Battlefield (IPB).

The central research question for this monograph asks, "Is IPB effective at battalion level?" The answer will be gleaned from Combat Training Center (CTC) take-home packets, Center for Army Lessons Learned (CALL) Bulletins, Desert Storm After Action Re-

ports, and interviews with battalion commanders, staff officers, and other subject matter experts.

I have employed several assumptions. I considered armored, mechanized infantry and light infantry battalions at full strength under Army of Excellence organization (per appendix E), opposing a Soviet style modern combined arms force in a conventional setting.

This study will first trace the evolution of the commander's need for intelligence, identifying trends toward increased size of the battlefield, proliferation of sensors to expand human powers of observation, and reduced time for decision making. It will define the requirements levied on battalion intelligence officers (S2s), identify contemporary criteria for effective intelligence and assess the sufficiency of assets available to the S2. Shortfalls identified during analysis will provide the foundation for suggested improvements to IPB or other applicable doctrine.

#### HISTORICAL PERSPECTIVE

As warfare has evolved, so has the requirement for intelligence. As longer range weapons and enhanced mobility enlarged the battlefield spatially, the commander's time for decision-making contracted. In 1947 a commander lamented: "Gone are the days when Napoleon could still appraise at a glance, from a single vantage point, the close well-ordered enemy forces, while in our day everything appears dissolved in a haze."<sup>4</sup>

Wellesley (later Wellington) at the Battle of Assaye in 1803 typifies the "commander as his own intelligence officer." Wellesley confronted an enemy on the far bank of a reportedly uncrossable river. He spotted two villages on opposite sides of the river and

assumed it must be fordable at that location, allowing his army to cross and prevail at the town of Assaye.<sup>5</sup>

Commanders have long looked to intelligence to reduce uncertainty in combat, thereby increasing the chances of victory. Sun Tzu could have been writing an IPB primer when he wrote:

To estimate the enemy situation and to calculate distances and the degree of difficulty of the terrain so as to control victory are virtues of the superior general. He who fights with full knowledge of these factors is certain to win; he who does not will surely be defeated.<sup>6</sup>

Clausewitz was skeptical of intelligence, warning, "Many intelligence reports are contradictory; even more are false, and most are uncertain. In short, most intelligence is false and the effect of fear is to multiply lies and inaccuracies."<sup>7</sup> A recent Parameters article suggests Clausewitz was mistranslated, that he was actually referring to information, not intelligence.<sup>8</sup> But is it coincidence that Chapter 6, Book I of Clausewitz' On War, devoted to Intelligence, is followed by Chapter 7 on Friction?<sup>9</sup> Despite his cautious approach to intelligence, Clausewitz predicted its increased importance: "It is of course true that as operations become more and more fragmented, more diversified and specialized, the role of intelligence in general will increase. . . ."<sup>10</sup>

Consistent with his deterministic approach to warfare, Jomini painted a more positive picture of intelligence. He did not consider intelligence a panacea, however, recognizing perfect intelligence was desirable, yet unattainable:

One of the surest ways of forming good combinations in war would be to order movements only after obtaining perfect information of the enemy's proceedings. In fact, how can any man say what he should do himself, if he is ignorant of what his adversary is about? As



it is unquestionably of the highest importance to gain this information, so it is a thing of the utmost difficulty, not to say impossibility; and this is one of the chief causes of the great difference between the theory and the practice of war.<sup>11</sup>

In 1960, A Command and General Staff College (CGSC) instructor offered this historical summary of the impact of intelligence:

The decisive factor in warfare has often been combat intelligence. It has been of major influence in every battle, campaign, and war in history, affecting the outcome of struggles between squads and armies. Yet, no other single factor has been so consistently ignored and neglected by unsuccessful commanders. Nothing else has been so universally used and emphasized by successful commanders.<sup>12</sup>

More than a faint echo can be heard in this contemporary passage from FM 34-80, Brigade and Battalion Intelligence and Electronic Warfare Operations: "Historically, commanders who have possessed superior knowledge of the enemy, weather, and terrain--intelligence--have proven victorious in battle."<sup>13</sup>

The purpose of this monograph is not merely to extol the virtues of intelligence in the historical or general sense. It is concerned with the challenges for intelligence officers posed by modern warfare, and one response to that challenge: IPB.

Between the World Wars, as military professionals sought an explanation and a doctrinal escape from the carnage that was WW I, a CGSC instructor lamented the trend toward a more complicated, less glorious mode of warfare:

In the old days before the appearance of long-range weapons and smokeless powder, the commander could usually take in the whole battlefield at a glance and, with his own eyes, see the mass dispositions and movements of his enemy. It was more or less a game of chess. The commander watched his enemy, gained accurate and timely information, and was enabled to make his decision and plan maneuver promptly according to his own concepts. . . .

Today, unfortunately, we have what is known as the "void of the battlefield." The increase in range of weapons and smokeless powder now prevent us from seeing the enemy. [T]he commander can rarely see at one time more than a small part of the terrain over which he must fight. . . .<sup>14</sup>

A former CGSC Commandant described the changes this way in 1948:

Centuries ago the ancestor of military proverbialists wrote, "Know the enemy as you know yourself." Today - and tomorrow - the urgency of Sun Tzu's maxim is even greater. Speed of movement on the ground, on the seas, and in the air has eliminated the day of the leisurely campaign. Intelligence - advance warning - is the only cushion which can replace the lost buffer of time.<sup>15</sup>

To today's military intelligence practitioners, IPB seems a modern tool. Yet most of the methodology was in place by the end of WW II, to include the essence of the intelligence estimate format, collection plans, Essential Elements of Information (which became Priority Intelligence Requirements in 1986) and the OCOKA factors for terrain analysis, which have changed only slightly.<sup>16</sup>

IPB provides a standardized technique to facilitate rapid assimilation of large quantities of information. BG Eugene Kelly, Jr., commander of the United States Army Intelligence Center and School (USAICS), approved the concept on 13 November 1975. A year later, the IPB project officer described it as:

a procedure that provides for the maximum integration and analysis of the factors of combat intelligence, weather, enemy, and terrain to enable the commander to exploit his knowledge of the enemy relative to the advantages and limitations of weather and terrain, to tilt combat power in his favor.<sup>17</sup>

IPB now dominates the intelligence process, provides the framework for doctrine germane to intelligence analysis, and figures prominently in non-intelligence-specific doctrine, such as FM 100-5 Operations and FM 71-2 The Tank and Mechanized Infantry

Battalion Task Force. Commanders' expectations for intelligence are high; this is a double-edged sword. While reliance on intelligence by commanders facilitates intelligence contributions to tactical successes, it carries the risk of blame, justified or contrived, for tactical failures. To the intelligence officer, it seems that every NTC or BCTP failure is attributed to poor intelligence.

Exaggerated reliance on intelligence can be as dangerous as ignoring it:

Today's commander may suffer from psychological overdependence on the availability of intelligence, and hesitate to take action without it even when necessary. Modern intelligence may have become an addictive disincentive to the development of the military genius' intuition and readiness to accept risks, the qualities of great commanders.<sup>18</sup>

The commander must guard against the allure of real-time intelligence and sophisticated communications that tempt him to command by "remote control," thereby losing his feel for the battle. He must weigh competing demands for his presence forward to bolster morale and sense the battle versus access to timely information at the TOC.

This dependence is even more problematic considering the volume of information available. Even at battalion level, raw information flows from a multitude of sources: scouts, ground surveillance radar (GSR), front-line units, patrols, remote sensors (REMS), artillery observers, aerial observers, and higher echelons. This intelligence windfall creates a problem: increased time for processing and analysis before it reaches the commander. Michael Handel in Intelligence and Military Operations sounds this warning:

The staggering increase in the volume of information obtained means that if anything, more, not less, time is needed for processing today; it means that this plethora of information may lead to a higher incidence of contradictory data and at times to paralysis of command.<sup>19</sup>

Current doctrine addresses the dynamic nature of modern warfare. FM 34-80 remarks, "Modern technology has compressed both the time and space required for effective combat operations."<sup>20</sup> FM 100-5 states, "The more fluid the battlefield, the more important and difficult it will be to identify decisive points and to focus combat power there."<sup>21</sup> IPB is the S2's, and ultimately the commander's, most potent tool to meet that challenge.

### THEORY AND DOCTRINE

As a precursor to assessing the effectiveness of IPB in support of battalion operations, this section will examine current doctrine for a definition and statement of purpose for IPB at this level. It will then synthesize from various manuals just what IPB is expected to accomplish.

IPB is an integral component of AirLand Battle. In fact, ALB and IPB are "growing up together," with another evolutionary step pending in the form of AirLand Operations and Intelligence Preparation of the Theater (IPT).<sup>22</sup> A 1983 War College study concluded, "Success in the AirLand Battlefield will depend on the successful completion of IPB data bases and processes to a much greater extent than in the past."<sup>23</sup>

EG Huba Wass de Czege is largely responsible for the 1936 version of FM 100-5. The importance of intelligence surfaces in another Wass de Czege product, the Combat Power Model, as articu-

lated in a 1984 monograph and summarized in Appendix A. Intelligence impacts on all four categories of combat power effects in the model.

The common thread among definitions of tactical intelligence is the commander. This was paramount in the minds of two WW II veterans in 1948:

Intelligence is for commanders. Intelligence is not an academic exercise nor is it an end in itself. The prime purpose of intelligence is to help the commander make a decision, and thereby to proceed more accurately and more confidently with the accomplishment of his mission. This thought is the keynote of tactical intelligence.<sup>24</sup>

FM 100-5 goes a step further, highlighting the commander's active role: "Intelligence operations are the organized efforts of a commander to gather information on terrain, weather, and the enemy."<sup>25</sup>

Similarly, FM 34-80 addresses the intelligence requirements of battalion commanders: "Commanders at tactical echelons require accurate intelligence to plan the battle and timely combat information to win it."<sup>26</sup> FM 34-1 states: "The purpose of tactical intelligence is to obtain and provide decision makers reliable information about the enemy, weather, and terrain as completely as possible."<sup>27</sup>

FM 100-5 reveals the extent of ALB's reliance on IPB. All four tenets of ALB require responsive intelligence, as illustrated in Appendix B. Similarly, Appendix C contains references to IPB within the AirLand Battle Imperatives in FM 100-5. Clearly, the identification of enemy weaknesses and the ability to anticipate enemy actions are direct results of IPB. CGSC's Student Text 100-9, Techniques and Procedures for Tactical Decisionmaking confirms

that link: "To have a firm understanding of the enemy and to be able to plan and operate inside the enemy decision cycle, the staff should anticipate the enemy's objectives and intentions."<sup>28</sup> The tactical dynamics, another key component of FM 100-5, all rely on IPB, as illustrated in Appendix D (IPB and Tactical Dynamics).

The keystone manual for heavy battalion operations is FM 71-2, The Tank and Mechanized Infantry Battalion Task Force. It emphasizes that IPB is critical to the command and control and maneuver battlefield operating systems:

Intelligence Preparation of the Battlefield is an integral part of the command and control process. It is the primary factor that will allow the battalion to react quicker than the enemy. . . . [It] provides a basis for all intelligence operations, tactical decisions, and tactical operations.<sup>29</sup>

[D]uring the planning and preparation phase, informal IPB helps the task force commander and staff develop courses of action in the manner most likely to produce success and maintain flexibility and freedom of action. During tactical operations, the S2 uses the IPB process to obtain, analyze, and distribute intelligence to maneuver elements. The S2 must sift and analyze volumes of intelligence information and provide the commander his assessment of the most likely course of action.<sup>30</sup>

The second passage, seemingly straightforward, contains the seeds of ambiguity and controversy: What exactly is "informal IPB" and should the S2 attempt to predict the "most likely course of action?"

Doctrine offers no clear answer. FM 34-1 prescribes, "Below brigade, the IPB process is less formal, producing detailed products only when time and resources permit."<sup>31</sup> Reports from the field reflect this phenomenon, but offer no concise format, as evidenced by this CALL observation: "Task force IPB is as elaborate

as the time available allows. It is significantly more streamlined at the task force than at higher echelons."<sup>32</sup> Doctrine is decidedly vague on the subject of informal IPB.

The doctrinal discussion of the type of intelligence required at battalion level is less vague. FM 34-80 asserts that battalions focus on combat information to support close operations.<sup>33</sup> It defines combat information as "unevaluated data gathered by, or provided directly to, the tactical commander," as opposed to intelligence, which is "the result of processing all available information about enemy forces."<sup>34</sup> These definitions reaffirm the focus of IPB as a commander's tool, not an isolated intelligence process, and highlight the transitory value of information.

FM 34-1, Intelligence and Electronic Warfare Operations, self-described as the "keystone manual [which] expands doctrine contained in FM 100-5, establishes the doctrinal foundation for IEW operations."<sup>35</sup> It contrasts battalion-level IPB with higher echelons: "The battalion . . . relies primarily on combat information for the execution of the battle."<sup>36</sup> The paradox of perfect versus timely intelligence runs throughout these doctrinal sources. For the most part, battalions require the latter, thus the need for combat information versus detailed analysis.

One source remains to be examined for a complete doctrinal definition of battalion level IPB: FM 34-100, Intelligence Preparation of the Battlefield. It describes IPB as a commander's tool, designed to help him control the battle by:

- \* identifying when the enemy can enter the battle area
- \* determining where and when follow-on forces are moving

- \* supporting deception

- \* target development<sup>37</sup>

It reiterates responsiveness to the commander: "IPB provides a tool to assist commanders in accomplishing their missions on the battlefield. . . . Commanders use IPB as a basis for fire and maneuver decision-making."<sup>38</sup>

What are the characteristics of effective intelligence that determine the effectiveness of IPB? Effective intelligence at the battalion level should reflect these characteristics:

- \* timely

- \* accurate

- \* disseminated to the appropriate user

- \* reduces uncertainty

- \* processes raw data

- \* integrated into commander's intent and operational scheme

- \* focuses collection effort

- \* predictive

Most of these criteria are straightforward and I will offer only a brief explanatory note. The requirement for prediction is controversial; I will justify its inclusion on the list.

Timeliness is critical in ALB, since our stated goal is to get inside the enemy's decision cycle, to make and implement decisions faster than he does. FM 34-80 states,

[E]ach commander needs timely and accurate intelligence that will aid his decision-making process. . . . IPB is the link between intelligence operations and ALE doctrine.<sup>39</sup>

A 1983 U.S. Army War College paper highlighted the necessity for timely, accurate intelligence for the emerging ALB concept: "Accuracy and timeliness of intelligence will enable commanders to create situations faster than the enemy can react, in a time-critical battlefield environment."<sup>40</sup>



Sheer volume of information is a potential obstacle to timeliness. The intelligence system must distinguish what is important.

The modern commander will be so deluged with intelligence that he may become paralyzed trying to sift the relevant data from trivial information. Such an overabundance of intelligence, like its absence, may cause serious delays in decisions. If a dearth of information was the major cause of friction in the past, the surplus of information in the present has given rise to a new form of friction.<sup>41</sup>

This potential pitfall involves two parts of the intelligence cycle: processing and dissemination. COL Wass de Czege's discussion of combat power emphasizes responsiveness to the commander:

The intelligence the commander requires must be in a form the commander can use and this requires proper processing. The entire intelligence gathering, analysis, and dissemination process must be geared to provide commanders . . . information upon which to make decisions.<sup>42</sup>

Intelligence must be tailored to the commander, plan and situation of the moment. Tailoring is an important, yet difficult task for IPB which is designed as a systematic, common framework.

FM 34-1 explains that "senior intelligence and operations officers must think like the commander in order to anticipate requirements. . . . Their functions are reciprocal; both should be able to do the other's job."<sup>43</sup> While not many S2s or S3s would willingly swap jobs, the requirement to mesh with the staff is valid. Student Text 100-9 indicates that war-gaming integrates the IPB and decision-making processes, because it incorporates the friendly course of action and results in a combined operations and intelligence product, the Decision Support Template (DST).<sup>44</sup> A 1986 NTC observation goes a step further, identifying the S2 as the section upon which all others rest: "All TF planning depends on

the intelligence plan."<sup>45</sup>

While intelligence support must be tailored to the commander, all commanders share the desire to reduce uncertainty through intelligence. GEN Glenn K. Otis, former commander of U.S. Army Europe (USAREUR) and Training and Doctrine Command (TRADOC), said as much in an MI Magazine article:

The overall goal of the intelligence process is to reduce uncertainty, allowing the commander to make informed decisions and to take action in less time than would be required without good intelligence.<sup>46</sup>

Current doctrine accepts that goal, as reflected in FM 34-130: "IPB is an analytical methodology employed to reduce uncertainty concerning the enemy, weather, and terrain for all types of operations."<sup>47</sup> FM 34-1 contains the same theme: "Situation development reduces battlefield uncertainty and provides the confidence to generate superior combat power."<sup>48</sup>

That comfortable consensus vanishes when considering the degree to which uncertainty can be reduced. To predict or not to predict? That has been the question debated by intelligence professionals throughout this century. Several recent School of Advanced Military Studies (SAMS) monographs conclude that descriptive intelligence is preferable to predictive intelligence (such as IPB's "most probable course of action").<sup>49</sup> I contend we must predict to "get inside the enemy's decision cycle." But before presenting my case, it is worthwhile to review the arguments against predictive intelligence because they remind us of limitations on our ability to predict.

A 1936 CGSC instructor revealed his opinion of predictive intelligence in his book Combat Intelligence:

If this treatise serves the purpose of eradication from our teaching such pernicious and fallacious phrases as "*probable enemy mission*," "*probable enemy intentions*," "*most probable enemy action*," it will accomplish its *principal mission*.<sup>50</sup>

Because he cannot determine with certainty what the enemy will do, the practical-minded commander will consider and base his own action on what the enemy can do, or, in other words, on the enemy capabilities.<sup>51</sup>

The controversy survived WW II. Patton's G2 sided with descriptive adherents: "No matter what the intentions of the enemy might be, he must have the capabilities to execute them. . . . For intelligence purposes, only one thing counts: capabilities."<sup>52</sup>

The Chief of the Training Branch, MI Division of the War Department General Staff, collaborated with a WW II infantry battalion commander to reach the same conclusion in their book Front-Line Intelligence.

Commanders must be certain that they base their actions, dispositions and plans upon *estimates of the enemy capabilities rather than upon estimates of the enemy's intentions*. Enemy intentions can seldom be determined because the commander may change his mind frequently or higher commanders may change his orders.<sup>53</sup>

In December 1945, the Lovett Board was convened to review the performance of Army Intelligence in WW II. Not surprisingly, they addressed the capabilities versus intentions question. Their conclusion may have been somewhat surprising to commanders:

There has been, at all levels, a lack of understanding of the proper function of intelligence. Primary emphasis has been put on furnishing conclusions as to enemy intentions rather than on presenting facts bearing on the enemy situation and capabilities. Commanders have expected intelligence sections to tell them what the enemy is going to do, instead of presenting the facts from which the commander might make the necessary determinations or assumptions, and intelligence officers have attempted to meet the requirement. In essence, the process has been one of transferring

important command responsibility from the commander to his G-2.<sup>54</sup>

Adherents to the descriptive intelligence school of thought have made themselves felt in the current CGSC curriculum. ST 100-9 advises, "Instead of trying to predict the enemy course of action, the G2 should provide the commander and staff with the full range of possible enemy courses of action."<sup>55</sup>

Despite these nay-sayers, predictive intelligence survives in current doctrine and practice. Why? Responsiveness to the commander drives the intelligence effort and the commander plans future operations. A former commander of the 3rd Infantry Division explained why prediction is unavoidable:

Don't focus your total energies on what is now on the battlefield; that will be history by the time you tell your commander. Focus on prediction, regardless of the level of command. . . .

Without this type of analysis, your commander will have to react to the enemy and not be capable of seizing the initiative.<sup>56</sup>

The danger of descriptive intelligence is that it can become absolutely worthless to the commander. Our current practice of enumerating all enemy capabilities results in a laundry list of operations that does not vary no matter what the enemy situation. Typically, they state the enemy is capable of attacking, defending, withdrawing, etc. Time could be saved by retaining copies for insertion into all orders.

The post-WW II book Intelligence is for Commanders labeled this so-called analysis "double-talk" and "gobblygook." The authors recounted a 1st Canadian Army comment concerning one such nonsensical assessment:

To borrow from the Americans' form of G-2 esti-

mate, the enemy in the west is capable of:

1. (a) a catastrophe  
(b) a miracle
2. (a) a fortunate coherent withdrawal to the right bank of the Rhine River.<sup>57</sup>

There is no sign that this debate will be resolved soon. Perhaps a pragmatic solution lies somewhere in the middle. Certainly the commander should be appraised of enemy capabilities with a reasonable expectation of occurrence (as distinct from an all-inclusive list that could never be wrong). Yet this does not preclude prediction of most likely, as well as assessment of the likelihood of all enemy courses of action.

What is the tangible output expected of the IPB effort? Most significant, from the commander or S3's standpoint, is the Decision Support Template (DST). According to FM 34-130, the DST "is essentially a combined intelligence estimate and operations estimate in graphic form."<sup>58</sup> It is the result of the combined efforts of the commander, S2 and S3; in fact, FM 34-130 considers it an operational document, to be briefed by the S3. Time permitting, the S2 also produces a written estimate. He recommends intelligence requirements and priorities to the commander, which take final form as Priority Intelligence Requirements (PIR).<sup>59</sup> IPB also provides the basis for the collection plan, which assigns collection responsibilities to answer the PIR, and the Reconnaissance and Surveillance (R & S) Plan.<sup>60</sup>

### RESOURCES

The most critical resource for the battalion S2's IPB effort is personnel. Appendix E (S2 Section Authorized Strengths) lists S2 section manning in infantry, light infantry and armor battal-

ions. The limited size significantly constrains the man-hours and expertise that can be applied to a tactical problem, particularly during continuous operations. Of the personnel listed, four are intelligence specialists (three in light units), meaning two can usually be expected to be on duty during 24-hour operations.

Recognizing this paucity of manpower, doctrine calls for higher echelons to provide many of the labor-intensive products required by IPB. FM 71-2 states:

The task force S2 relies on higher [division] headquarters to provide much terrain and weather information. The formal IPB process is performed at corps and division and the informal IPB process is performed at brigade/battalion levels.<sup>61</sup>

FM 34-80 is in agreement: ". . . [B]attalions are not sufficiently resourced to perform formal IPB without assistance from higher echelons."<sup>62</sup> It adds, "Requirements exceeding the capability of battalion resources are forwarded to the brigade."<sup>63</sup>

#### ASSESSMENT OF EFFECTIVENESS

We have seen how demands upon the intelligence system have grown and examined contemporary doctrine to determine what is required of the intelligence system. We will now consider whether those requirements are met.

I gathered evidence from over 500 observations relating to intelligence from the Center for Army Lessons Learned (CALL) data base. These observations, spanning 1985 to 1991, pertain to National Training Center (NTC) and Joint Readiness Training Center (JRTC) rotations, exercises and actual operations such as Desert Storm. Other sources included interviews with commanders, observer/controllers, CALL analysts and intelligence officers, as well

as articles, books and NTC take-home packages.

Criteria to assess effectiveness are articulated in a prior section: timeliness, accuracy, dissemination, reduction of uncertainty, integration with the commander and staff, collection focus, and ability to predict enemy actions. I will attempt to distinguish between problems with IPB doctrine and inability to execute it.

Lack of S2 integration with the commander and staff is a recurring theme in NTC observations. Failure in this aspect effectively degrades or negates positive contributions in virtually every other category of effectiveness. As such, it will receive special attention.

TIMELINESS. Battalion S2s seldom have significant input into operational planning during the early steps of the decision-making process. Ironically, S2 tasks are heavily front loaded, due to labor intensive preparation of IPB products, yet these products have the greatest potential to contribute to decision making during the development and analysis of courses of action. An NTC observer/controller noted, "Staff elements can't be expected to wait for the S2 to finish his estimate to start their planning."<sup>64</sup>

In an ideal world (from an intelligence standpoint) staff planning would be a sequential process. IPB would be completed first, providing the commander and staff the best terrain and enemy data possible to develop a plan. In reality, the staff scrambles to complete their respective portions of the estimate, frequently overlooking coordination.

Synchronization is required not just for execution, but for

planning as well. In 1990, the commander of the U.S. Army Combined Arms Training Activity (CATA) observed, "Battalion and brigade staffs admit deviating from the decision making process because it is time consuming."<sup>65</sup> The commander of the NTC commented in September 1991 that the staff estimate process takes too long.<sup>66</sup>

ACCURACY. Accuracy does not appear to be a major problem, based on infrequent mention in the CALL data base. Most accuracy problems are correctable by training and do not suggest revision of doctrine. S2s tend to relax after completion of the initial estimate and presentation of the order. IPB must be updated continuously.<sup>67</sup>

In general, accuracy is identified as critical, and attainable within our current doctrinal framework. In 1991, MG Paul E. Menoher, Commandant of the U.S. Army's Intelligence School, summarized, "The greatest lesson from the [combat] training centers is that without accurate, timely intelligence, we cannot hope to win on the next battlefield."<sup>68</sup>

DISSEMINATION. Dissemination is more problematic than accuracy. Too often, solid analysis never reaches decision-makers. This problem is manifested in two ways: from higher to battalion, and from the battalion S2 to his commander, fellow staff officers and subordinate elements.

We have identified the dependency of the battalion S2 on brigade and division for IPB products. In many instances, "division IPB products rarely get to Brigade"<sup>69</sup> and the battalion invariably has only what it can produce under severe time constraints.<sup>70</sup>

A second type of dissemination failure occurs within the



battalion. S2s are reluctant to use the command net for dissemination of intelligence. The account of a mechanized infantry battalion at the NTC noted, "During the battle, the TOC followed the tactical situation well, yet provided the commander with no analysis."<sup>71</sup>

REDUCTION OF UNCERTAINTY. IPB reduces uncertainty too well, creating a false sense of certainty. S2s are forced to identify the most probable enemy course of action, but do not establish the likelihood of that course of action or pay sufficient attention to alternatives. This myopia is reinforced by the almost universal practice of wargaming only the most probable course of action.

An S2 observer/controller at the NTC saw this analytical error with regularity:

We've seen S2s steer the commander and staff to believe the enemy will accept only one course of action because the S2 developed only one course of action. The commander will make a decision based upon this course of action, then lose the battle because the enemy didn't attack or defend the way the S2 thought.<sup>72</sup>

An officer who experienced dozens of NTC rotations as both participant and observer/controller admonished that "blue forces" must be prepared for all enemy courses of action. As a CGSC tactics instructor, he noted that the enemy situation is unchanging as it is played in the CGSC classroom.<sup>73</sup>

Perhaps most disturbing is the vulnerability this creates:

The Soviets show a great deal of interest in the Western IPB process. . . . The use of this process to fit terrain in the western defense provides, in the Soviet view, some predictability and opportunities for tactical surprise.<sup>74</sup>

Will the attempt to reduce uncertainty will be exploited by our opponent to make us susceptible to surprise?

INTEGRATION. Commander's involvement in IEP should begin with planning guidance, including preliminary PIR, yet most commanders overlook this step.

The management of PIRs is critical to the efficient employment of limited intelligence resources. . . Typically, the establishment of PIRs is left to the S2 alone. . . . Often the result is general PIR such as when and where will the enemy attack and will the enemy use chemical weapons. . . . It is important that the priority intelligence be a joint S2 and commander function early upon receipt of the mission and continuous with changing situations.<sup>75</sup>

The commander--S2 relationship must be cooperative; in addition to providing the S2 guidance, the commander must be receptive to intelligence, particularly as he formulates his concept of the operation.<sup>76</sup> During execution, the enemy situation is often accurately portrayed in the TOC, but the commander is unaware of this information at the forward position from which he directs the operation.

The commander can also establish planning procedures to ensure coordination between the S2 and the remainder of the staff. NTC observations consistently record mission analysis and wargaming without S2 input.<sup>77</sup> Resultant maneuver schemes are predictably inconsistent with the enemy situation.<sup>78</sup> An armor task force at the NTC produced two unrelated plans for their scouts--one by the S2, another by the S3.<sup>79</sup> That unit's summary including this telling comment: "While the S2 was certainly able to develop useful intelligence products, the staff was unable to exploit them. The TF fights without taking advantage of enemy patterns and weaknesses."<sup>80</sup> A JRTC observation told a similar story:

There was no habitual interaction between the S2 and the remainder of the TF staff. . . . The other sections never told the S2 what their intelligence in-

formation needs were . . . no effort was made by the S2 to provide it.<sup>81</sup>

The most obvious mechanism for commander and staff interaction is wargaming. In practice, wargaming seldom includes all logical participants (commander, S2, S3, FSE, ALO). Another common flaw is wargaming after the plan is complete or during rehearsals, which allows for a degree of mental dexterity but no opportunity to adjust the plan in response to insights gained.<sup>82</sup>

The lack of integration was best captured by then-LTC William H. Janes, the senior observer/controller for armor task forces at the NTC in 1987:

IPB is our starting block, which must include input and active participation from all the staff and not just the S2. . . . The IPB process is a tremendous innovation that unfortunately is misunderstood/used by a very few leaders. We must energize this great tool. Intelligence . . . is routinely left to the S2.<sup>83</sup>

This comment by an experienced combat arms officer reveals both the inherent potential of IPB, and the gap between practice and potential.

COLLECTION FOCUS. Effective IPB identifies critical locations and targets to focus the collection effort. CTC reports reveal a failure to prioritize PIR and IR or update them.<sup>84</sup> S2s sometimes copy PIR from higher echelon orders or repeat those from previous missions.<sup>85</sup> Once PIR are generated, they must be used to steer or update the collection plan. A study group from the U.S. Army Armor School observed a "special focus" rotation in 1987 to scrutinize reconnaissance and surveillance. They concluded:

IPB is the foundation of a sound reconnaissance plan. Doctrine thoroughly describes IPB in support of defensive operations, however, doctrinal literature does not describe the process of using IPB to develop courses of

action for reconnaissance and offensive operations.<sup>86</sup>

PREDICTION. We have discussed the danger of predicting beyond the logical inferences from available information. At the other extreme is this observation from the Third Army G2 in Desert Storm:

Commanders consistently claimed that much of their intelligence from their own staffs tended to be history or specific facts without a predictive element that described what the enemy would do.<sup>87</sup>

NTC rotations often generate comparable complaints, but one NTC take home packet demonstrates that IPB can deliver as advertised:

When the battle began, the squadron S2 was carefully monitoring the SPOTREPS. Using his event analysis matrix enabled him to more precisely correlate events and activities expected from the enemy. By knowing in advance what the enemy can do and comparing it to what he was doing enabled the squadron S2 to predict his next actions and keep the brigade S2, S3 and commander informed.<sup>88</sup>

THE VERDICT. With the exception of accuracy, battalion-level IPB appears to fall short in every measure of effectiveness. At best, its execution is inconsistent.

#### ANALYSIS

This section will identify reasons for those shortcomings identified in the previous section, and distinguish problems with doctrine from failures attributable to faulty application of doctrine or training deficiencies. This analysis will answer the following questions:

- 1) Does doctrine adequately define IPB and the responsibilities of the battalion S2?
- 2) Does the battalion S2 have sufficient resources to carry out his responsibilities?
- 3) Does IPB support staff planning?
- 4) Are commanders playing the right role in the intelligence effort?

5) Does prediction contribute to mission accomplishment?

A glaring shortcoming of current doctrine is the most basic question for a battalion S2: What constitutes IPB at my level? Doctrine provides only vague references to "informal IPB," without defining it. The S2 is forced to come up with his own definition--to decide what fraction of the doctrine really applies to him.

FM 34-1 states:

IPB is routinely conducted at all echelons, battalion through corps. . . . Detailed IPB products are prepared at corps and division, which provide needed products to brigades and battalions to assist their IPB by compensating for their lack of time and personnel resources.<sup>89</sup>

FM 34-130 reflects a similar theme: "At brigade and battalion the IPB process is more informal, becoming more formal only when time and resources permit."<sup>90</sup>

The CTCs reveal the dilemma for S2s; witness this observation from a 1988 JRTC operation:

Currently the S2 is hard pressed to prepare a couple of graphics. To say that IPB at battalion level is done on an informal basis leaves IPB open to wide interpretation as to what should be done.<sup>91</sup>

Later, we'll see just how voluminous and time-consuming the "formal process" is. Doctrine must to define the informal process. Subsequent discussion will address the proliferation of graphic products and the command estimate process. It will propose a definition of informal IPB in terms of reduced products and preparation time.

Current doctrine is inconsistent concerning PIR. In fact, the nine pages of FM 71-2 devoted to the decision-making process do not even mention PIR.<sup>92</sup> The ensuing eight pages explain IPB from the commander's perspective, yet mention commander's involvement only

in the context of battlefield area evaluation (BAE). PIRs and decision points (DPs) are conspicuously absent.<sup>93</sup>

Even intelligence manuals are inconsistent. FM 34-1 directs the S2 to establish PIR and IR, which "must be personally approved by the commander."<sup>94</sup> FM 34-80 indicates that the commander conveys his needs to the S2, who produces PIR/IR for the commander's approval.<sup>95</sup> Conversely, FM 34-130 indicates the commander issues PIR as part of commander's guidance. ST 100-9, CGSC's decision-making guide, omits preliminary PIR from commander's guidance.<sup>96</sup>

To resolve this problem, I suggest revision of Chapter 2 of FM 71-2 to emphasize the commander's responsibility for PIR (with S2 consultation). In addition, the DMP should clearly state that DPs are generated by the combined efforts of the S2, S3 and commander, but ultimately determined by the commander. They should not be finalized until after wargaming.

Other areas of doctrine are equally confusing. FM 34-130 suggests that decision support templates (DST) are derived from the higher echelon's DST. "At the subordinate functional level, the DST is expanded or refined as the mission or commander's concept dictates."<sup>97</sup> At battalion level, the brigade DST is not normally provided during continuous operations, and in the best case, would not arrive in time to allow adherence to the 1/3--2/3 rule. The battalion DST must be the result of intelligence and operational analysis within the battalion.

CALL notes that S2s overlook light data or, more frequently, present it as raw data.<sup>98</sup> Commanders and subordinates frequently are aware of percentage of illumination, but oblivious to moonrise

and moonset. An obvious danger is that full illumination may be anticipated during an evening when the moon never rises. As a solution, the graphic at Appendix F is consistent with the IPB approach of presenting intelligence in graphic form, presents five sets of related data (EENT, moonrise, percent illumination, moonset and BMNT) in one place, and can be readily reproduced.

FM 34-80 identifies the DST as the basis for other staff planning.<sup>99</sup> While the DST is valuable to the staff, it cannot be finalized until the bulk of staff planning is completed, to include wargaming. Doctrine must recognize staff planning as a parallel, not sequential process. CTC rotations dramatically illustrate the frenzied activity which characterizes all staff sections during planning. There are also inconsistencies about input to the DST. FM 34-130 prescribes a DST based on a single most probable course of action.<sup>100</sup> We discussed the commander's need to consider all enemy courses of action. In fact, the very nature of a DST allows the S2 to discriminate between different courses of action as they unfold.

The S2 must realize that the enemy considers friendly actions. Planning is an interactive and dynamic process subject to change as both sides collect and digest information. As General Glenn K. Otis stated in 1986:

An important part that is overlooked in existing IPB literature is the significance of friendly action on the battlefield environment. . . . To be effective, analysts must have a good understanding of what friendly forces are doing, and are planning to do, in order to accurately assess probable enemy courses of action.<sup>101</sup>

The format for enemy capabilities in an intelligence estimate

is redundant. It includes: 1) Enumeration, 2) Analysis and Discussion, and 3) Conclusions (including Probable Enemy Courses of Action). The first category tends to be a laundry list of all conceivable actions--attack, defend, delay, etc. During briefings, the audience visibly drifts during this portion, because they know the real analysis comes later. The briefing lacks continuity because the analysis of a course of action is separated from the enumeration, and the most probable COA is not addressed until three steps into the conclusion paragraph. In lieu of this cumbersome format, I suggest a single category called Enemy Courses of Action, which discusses each possible COA in descending order of probability, including assessment of the danger to the friendly plan.

Two items cause additional confusion for battalion S2s. The 1991 edition of CGSC's ST 100-9 calls for the use of force ratios to allow planners to allocate friendly forces, yet omits the unit values contained in previous versions. The S2 is left with a numerical methodology and no numbers.<sup>102</sup> I suggest that ST 100-9 and intelligence FMs provide a consistent set of unit values, with a proviso that S2s apply judgment to those numbers based on all the components of combat power. If doctrine cannot provide these numbers, force ratios should be omitted altogether. We also need to deconflict the CGSC and USAICS methodologies. While ST 100-9 is not doctrine, it largely defines IPB for most soon-to-be battalion S3s and commanders. If the technique is valid, it should be included in intelligence doctrine.

We need to relook the OCOKA factors. This may seem heretical, given a universally used pneumatic device that has remained funda-



mentally unchanged since WW II. However, the sequence simply is not logical. Key Terrain, observation and fields of fire are of little analytical value prior to identification of Avenues of Approach. FM 71-2 even advises identification of avenues of approach prior to the application of the OCOKA factors.<sup>103</sup> I commend the following sequence:

Objective: Where does the enemy (or my commander) want to go?

Obstacles: What impedes his (our) movement to the objective?

Avenues of Approach: How can he (we) get there?

Key Terrain: What facilitates that movement or provides a decided advantage to either side?

Observation and Fields of Fire

Cover and Concealment<sup>104</sup>

The next factor of analysis is the time available at battalion level to accomplish IPB. Can the S2 section, as presently configured (Appendix E), accomplish IPB?

We previously noted the lack of a usable definition of "informal IPB," the form of IPB used at echelons below division. The evolution of IPB doctrine has gradually expanded the requisite products to the point of diminishing marginal returns. At battalion level, they exceed capabilities by several orders of magnitude. Appendix G summarizes the plethora of products specified by FM 34-130. Applied to a battalion defense, this appendix tallies 166 overlays and templates applicable to a single operation.

Although IPB doctrine relieves the S2 from futile attempts to create all these products, the determination of which ones apply is left to the S2 with little guidance, an irony in a process intended to standardize intelligence support.

At the outset, FM 34-130 acknowledges the unrealistic number of products. The preface states,

This publication is intended to serve as a guide. No part of this document should be construed . . . to imply that all graphics depicted must be prepared by all commands in all situations.<sup>105</sup>

Unfortunately, the body of the manual lacks more specific guidance. Chapter 4, which lists all the templates, caveats, "At echelons below division, where terrain teams are not directly accessible, terrain data and overlay products are not part of the standard intelligence data base."<sup>106</sup> It further suggests getting support from division for specific missions.

The most specific, and realistic, reference to battalion level IPB deals with overlays. "As time is often limited at the lower tactical levels, only a single terrain product (overlay), the modified combined obstacles overlay (MCOO), is prepared."<sup>107</sup>

Unfortunately, guidance on doctrinal templates is less clear. All necessary templates must be identified, but the number of templates must be limited to the essential.<sup>108</sup> In an effort to assist the battalion S2, doctrine advises, "doctrinal templates for several divisions are developed by the corps and distributed to subordinate units."<sup>109</sup> I have never witnessed this support to battalion S2s while observing 26 NTC rotations. FM 34-80 mentions only self-produced doctrinal templates.<sup>110</sup>

The Army has produced 1:50,000 scale Soviet doctrinal templates as GTA 30-1-24. However, this set includes only 29 templates of varying size units and cannot be expected to meet all requirements (consider the 58 doctrinal templates identified for a

single type mission in Appendix G). Further, the GTAs are not regularly updated (the "current" set was produced in 1984).<sup>111</sup> Inclusion of GTA 30-1-24 as an attachment to FM 34-130, with updates disseminated as needed, would alleviate this problem.

I suggest that FM 34-130 (or the proposed USAICS Publication 100-34-10, MI Operations Tactics, Techniques and Procedures) delineate requirements for battalion level products, or in other words, define informal IPB. A doctrinal matrix could be developed reflecting all IPB products, which would identify applicable echelons for each product. Those which apply only to specific scenarios or given extended planning time would be annotated as optional in the corresponding block of the matrix.

The MCOO and DST should always be done at all levels, according to FM 34-130.<sup>112</sup> In my proposed matrix, the only mandatory products in all circumstances would be the MCOO, Enemy Situation Template, and the DST. This matrix would provide intelligence officers at all echelons a consolidated list of requirements. It would also furnish a listing of useful additions to the IPB effort, dependent on time, manpower, and assistance from higher echelons, which could be used to prioritize subsequent effort once essential products are complete.

As the battalion S2 fights his war against time to produce voluminous IPB products, the commander and the other staff plan without his input. Coordination between the S2 and the staff is a recurring problem at the CTCs. On those rare occasions when effective coordination is accomplished, a synergistic effect is achieved as both the intelligence process and operational planning improve.

The focal point of this coordination should be wargaming, when friendly and enemy courses of action meet. CALL advises, "The products of IPB are critical to the success of the wargaming process."<sup>113</sup> CALL notes, however, that effective wargaming is the exception to the rule:

The commander and staff must do a better job of integrating IPB during the estimate process. This can be done during the wargaming step in the command estimate. The event and decision support templates should be products of wargaming a particular friendly course of action, not products manufactured by the intelligence staff in isolation.<sup>114</sup>

IPB cannot be conducted in a vacuum. Wargaming should produce named areas of interest (NAIs), target areas of interest (TAIs) and DPs; therefore the DST cannot be finalized until after wargaming. ST 100-9 is even more prescriptive concerning development of the friendly plan. "Only after the Course of Action has been wargamed against all enemy situation templates should the G3 decide whether to modify the Course of Action."<sup>115</sup> FM 71-2 should be revised to provide consistency in the timing and responsibilities for determining NAIs, TAIs and DPs.

A final word about wargaming: the S2 must not portray a pliant enemy. Flaws in the friendly plan are better identified on the mapboard during planning than on the battlefield during execution. An intelligence observer/controller at the NTC called it being "an uncooperative enemy."<sup>116</sup>

If wargaming is the critical procedural link between the S2 and the friendly plan, the DST is the critical product. The description in FM 34-130 aptly describes its function:

The DST is essentially a combined intelligence estimate and operations estimate in graphic form. It re-

lates the detail of the event template to decision points that are significant to the commander, and identifies critical battlefield areas, events and activities which require tactical decisions by time and location. The DST does not dictate decisions to the commander, but indicates where a decision may be required. . . . The DST must be developed as a result of a total staff effort.<sup>117</sup>

Unfortunately, DSTs are not universally used at battalion level.<sup>118</sup>

The problem appears to be a function of time. During a September 1991 visit to the NTC by SAMS students, Brigadier General Wes Clark, NTC Commander, assessed that the staff estimate process simply takes too long. He suggested tailoring the IPB sequence to match the staff estimate process as follows:

<u>commander's needs</u>	<u>when</u>
analysis of the AO and situation template	initial staff planning
event template	course of action development
DST	after the decision <sup>119</sup>

CALL suggests a hierarchy of Decision Making Processes, differentiated by available time (sufficient, moderate or limited). At battalion level, CALL defines limited planning time as two to six hours.<sup>120</sup> CALL also stresses early input of preliminary IPB into the planning process: following the warning order, the S2 provides a current situation template, a hasty analysis of the AO, and a weather forecast. CALL explains,

The hasty intelligence estimate will enable the commander and S3 to begin developing the concept of the operation while the S2 refines his templates and surveillance, counterreconnaissance, and reconnaissance plans.<sup>121</sup>

The FORSCOM Leaders Training Program (FLTP) at Fort Irwin has devised an abbreviated command estimate process, to be employed

when four hours are available (Appendix H). FLTP also advocates significant IPB input into mission analysis, including avenues of approach, mobility corridors, lateral mobility corridors, slow go and no go terrain, defiles, intervisibility lines, major wadis and the situation template (as currently known).<sup>122</sup>

Two final techniques are infrequently used to increase the S2's integration into the planning process. First, the S2 must be allotted ample time during briefings to brief all enemy courses of action, not just the most likely. Second, the S2 should participate in backbriefs from company commanders to the battalion commander to ensure that perceptions of the threat are accurate.

While the staff must be intimately involved in IPB, the commander must realize it is his process, not the S2's. As a DIVARTY commander stated, "IPB is really CEB, the commander's examination of the battlefield."<sup>123</sup> The term "Commander's Preparation of the Battlefield," while not yet doctrine, is increasingly in vogue. Three aspects of commander's involvement merit examination: commander's guidance, tailoring of IPB to the commander, and decision points (DPs).

FM 34-130 stresses that "the development of IPB products . . . requires . . . the direction and focus of the commander."<sup>124</sup> It further specifies the early identification of PIR by the commander during the decision-making process: "The commander and the mission begin and drive IPB. . . . The planning guidance should contain the commander's priority intelligence requirements."<sup>125</sup> The Tactical Commander's Development Course (TCDC) at Fort Leavenworth has expanded upon commander's guidance, and recommends inclusion of the

following:

- \* enemy courses of action to consider during wargaming
- \* specific weather and terrain factors to consider
- \* collection priorities (initial PIR)<sup>126</sup>

This detailed guidance, early in the staff estimate process, will energize the S2 section consistent with the commander's evolving concept of the operation. In turn, the S2 must tailor IPB to the commander's needs. This requirement surfaced during Desert Storm:

Intelligence systems must focus on the commander to whom the product is being furnished. . . . Too often, it appeared that the same detail provided to the CINC was forwarded through channels to the lowest level user. Either raw data must be furnished to the lowest level for analysis or better focus for multiple levels must come from high level analysts. Much critical information at the division level was found discarded at higher levels because it was too detailed for that level commander.<sup>127</sup>

Battalion S2s must understand the level of detail needed for their product, since they are dependent on higher echelons for many of their IPB products.

The S2 must understand how the commander thinks; this can only occur through the combined efforts of both of them. A World War II S2 identified this requirement in 1946: "The combat 2 should constantly project himself into the position of his commander. Suppose you had to make the decision. What would you need to know?"<sup>128</sup> The commander can expose the S2 to his thought process by taking him along on the leaders reconnaissance, a technique that has paid dividends at the NTC.<sup>129</sup>

The commander must participate in identification of decision points (DPs). Perhaps the terminology was poorly chosen, but combat arms officers still do not universally understand what a deci-

sion point is, after a decade of IPB implementation. Many still consider them geographic points at which the enemy must make a decision, rather than points which require a friendly decision.

To reinforce the correct definition and make DPs a workable tool, they need to go on operational graphics. Not only will this provide the commander, S3 and subordinate commanders with an operational shorthand and common frame of reference for threat information and friendly decisions, it also offers continuity if the succession of command must be exercised. The NTC Brigade Trainers Orders Guide recommends providing subordinates as much as possible in IFB product form: the MCOO, situation template, reconnaissance and surveillance plan, and NAIs.<sup>130</sup> There is much to be gained from this technique, although its viability depends upon time available and reproduction capability for overlays.

According to doctrine,

The selection of DPs is primarily a G3 or S3 function, based on the G2 or S2 input of the threat. However, the selection of DPs requires the efforts of the G3 or S3, the G2 or S2, the FSCoord or FSO, their respective staffs, and the principle staff officers of the CS and CSS elements.<sup>131</sup>

The commander is conspicuously absent from this lengthy list of contributors, yet he is the one who will ultimately make the decision. A commander wrote,

[The DST] cannot be a G2 or S2 product. This is a decision support template. Decisions are made by the commander. They cannot be "presented"; they must be determined at the decision brief.<sup>132</sup>

We must not allow commanders to be passive observers of the IPB process. Nor can commanders harbor expectations that IPB will provide all the answers or alleviate the requirement to take risks.



The commander should avoid viewing intelligence as the solution to all his problems. When intelligence is unavailable, inadequate, or slow to arrive, he should be prepared to make timely, carefully weighed decisions in order to exploit short-lived opportunities. The dangerous habit of delaying action until definitive information has been received (and until risk and uncertainty has been eradicated) is reinforced by an environment in which the intelligence community promises to deliver more than it can; the myth of intelligence as panacea is allowed to persist, and commanders are *not allowed to make any mistakes*.<sup>133</sup>

A symptom of the "perfect intelligence disease" is the search for the elusive "most probable enemy course of action." Earlier, I asserted that prediction was necessary. Prediction is counterproductive, however, if it blinds the commander to alternative enemy courses of action. An NTC observation warned, "Planning for one possibility and basing all actions [on it] invites defeat."<sup>134</sup>

While it is desirable to identify the most likely COA, in many situations there are several competing COAs with similar probability of adoption. Current doctrine calls for enumeration of all COAs and the choice of one as a conclusion. CALL offers an alternative approach:

Instead of trying to predict the most probable enemy course of action, the G2 should provide the commander and staff with the full range of significant courses of action. Then, the staff is obligated to consider these enemy courses of action when it wargames friendly courses of action.<sup>135</sup>

There are two factors to consider when assessing enemy courses of action: probability and danger. Probability is the likelihood of occurrence. Danger is the degree to which the enemy's action will cause the friendly course of action to fail.

S2s must also be cognizant of the interactive nature of warfare. IPB can be too deterministic and too neat. The enemy is not

constrained to the course of action best supported by the terrain. Despite traditional portrayals of Soviet soldiers and their tactical adherents, the enemy will likely value initiative, surprise and deception. As the NTC dramatically illustrates, Soviet doctrine emphasizes reconnaissance, and we must anticipate adjustments to his plan based on what reconnaissance reveals of the friendly plan.

The likelihood of direct combat against the Soviets grows increasingly remote. Future enemies who follow Soviet doctrine will deviate from that model to varying degrees.

Consider the warnings of a CGSC instructor:

In our theoretical tactical work we attribute an almost unbelievable immobility and stupidity to our adversary. We treat the enemy as a sort of inanimate factor which, on equal terms with such other factors as terrain and the capabilities of our own troops, might possibly have an adverse effect on the accomplishment of our missions. The reactions of the enemy are what we make them, not there of a will as free and independent of our own.<sup>137</sup>

Remarkably, the instructor recorded his thoughts in 1936.

False certainty in prediction gives the impression of reducing uncertainty. On the contrary, it reduces the ability to react to fluid conditions. The more confident the prediction, the more difficult it becomes to recognize the fallacy of the prediction:

Any commander who is addicted to [predicting intentions] and who has arrived at a conclusion as to what he considers 'enemy probable intentions' will interpret all subsequent enemy information in such a way as to reinforce his preconceived ideas.<sup>138</sup>

Consideration of multiple courses of action facilitates friendly planning of branches and sequels.

Suggestions concerning commander's involvement in IPE may find a place in a proposed FM 100-34, Intelligence, which is in the con-

ceptual stages at the Intelligence School at Fort Huachuca. This manual, expected to take 18 months to write, is intended to complement FM 100-5 and will be targetted at commanders, not intelligence officers. A draft outline is provided at Appendix I.

### CONCLUSIONS AND IMPLICATIONS

IPB is a modern methodology which seeks to conquer an enduring problem: reduction of uncertainty on the battlefield. Modern warfare, with expanded ranges and speed of movement, reduced planning time, and emphasis on initiative and thinking faster than the enemy, only heightens the challenge.

Effective intelligence is timely and accurate, can accommodate a large volume of data, and reduces uncertainty while offering a reasonable ability to predict. Its products are disseminated to decision-makers in time to influence the battle, and focus the collection effort.

IPB is an effective, systematic means of reducing uncertainty, yet battalion S2s struggle to complete IPB tasks that are practical only at higher echelons with greater resources. Contemporary failings result from the intelligence officer's inability to produce an unreasonable number of products. Doctrine would better serve the battalion S2 if it acknowledged and adjusted for the different intelligence needs and resources at echelons from battalion to corps. Combat arms officers have a good grasp of this decade-old system, yet commanders do not play a sufficiently active role in guiding the intelligence system in support of their operations.

The analytical, step-by-step approach of IPB is well-suited to battalion S2s, who are relatively inexperienced. IPB doctrine will

better serve them, however, by acknowledging and articulating the reduced scope of IPB at battalion level. My research identified several doctrinal approaches for increasing the utility of IPB at battalion level:

#### UNIFORMITY OF INTELLIGENCE AND OPERATIONS DOCTRINE

- 1) Revise Chapter 2, FM 71-2 to emphasize the commander's role in generating PIR and DPs.
- 2) Standardize the use of force ratios at CGSC with doctrinal publications. If a consensus cannot be reached on numerical values for type units, discard the technique as unworkable.
- 3) Deconflict the decision-making process, staff estimate process, and IPB. Incorporate the FLTP command estimate process into doctrine.
- 4) Emphasize the commander's role in IPB. Include preliminary PIR in commander's guidance. Include the S2 on commander's recons and backbriefs. Assign ultimate responsibility for decision points to the commander and include them on operational graphics.

#### INTELLIGENCE DOCTRINE REVISION

- 5) Define the informal IPB process.
- 6) Remove unrealistic references to support from higher echelons. Recognition that most battalion level IPB is self-generated is the first step toward more realistic requirements. Alternatively, itemize specific products that division and brigade are expected to provide.
- 7) Consider multiple enemy courses of action in the intelligence estimate and wargaming. Streamline analysis of enemy COA in the estimate into a single paragraph, ranked in descending order of probability, with attention to the relative danger to friendly courses of action.
- 8) Revise terrain analysis from OCOKA to OOAKOC.
- 9) Include current doctrinal templates in FM 34-130 or its successors.
- 10) Specify template and overlay requirements by echelon via an "IPB Product Matrix." Significantly reduce the demands placed on battalion S2 shops.
- 11) Publish FM 100-34 as a concise overview of the intelligence system for commanders.

## TECHNIQUES

- 12) Depict light data graphically.
- 13) Disseminate IPB products to subordinate elements rather than retaining single copies in the S2 section.
- 14) Emphasize continual update of IPB by employing a thinking OPFOR for exercise play.

Intelligence professionals are at an important window of opportunity in the evolution of IPB. Combat arms officers are universally aware of IPB and have high expectations for its contributions. We must exercise caution in not promising more than can be delivered. Intelligence is often cited as the cause for failure at the CTCs and tactical intelligence got poor reviews from Desert Storm.

We must also avoid the isolation of IPB within intelligence channels. The FM 100-34 initiative offers an excellent opportunity to involve commanders in the IPB process and clarify the inputs and outputs of the system. Through integration with staffs and responsiveness to commanders who take an active role in IPB, it can achieve its largely unrealized potential as a combat multiplier for the battalion.

APPENDIX A: COMBAT POWER MODEL<sup>139</sup>  
(items related to IPB underlined)

COMBAT POWER IS A FUNCTION OF:

1. FIREPOWER EFFECT: (which is a function of)

VOLUME OF FIRE: (which is a function of)

Number of delivery means  
Supply Capability  
Rate of fire of weapons systems

LETHALITY OF MUNITIONS:

Design characteristics  
Explosive energy

ACCURACY OF FIRES:

Weapon and munition design characteristics  
Crew proficiency  
Terrain effects  
Visibility

TARGET ACQUISITION:

Intelligence and intelligence analysis  
Location and functioning of observers and sensors  
Transmission of Target Data

FLEXIBILITY OF EMPLOYMENT:

Weapons ranges  
Mobility  
Signature effects  
Fire control systems  
Tactical employment doctrine

2. MANEUVER EFFECT:

UNIT MOBILITY:

Physical fitness and health of individuals  
Unit teamwork and esprit  
Unit equipment capabilities  
Unit equipment maintenance  
Unit mobility skills

TACTICAL ANALYSIS:

Intelligence and knowledge of enemy tactics  
Understanding of terrain effects  
Understanding own unit capabilities

MANAGEMENT OF RESOURCES:

- Equipment utilization
- Supplies utilization
- Personnel utilization
- Time utilization
- Utilization of energies of subordinates

COMMAND, CONTROL AND COMMUNICATIONS:

- Span of control
- SOP's and doctrine
- Staff Efficiency
- Communications Efficiency

3. PROTECTION EFFECT:

CONCEALMENT:

- Camouflage
- Stealth
- Equipment design
- Counter enemy intelligence acquisition means

EXPOSURE LIMITATION:

- Minimize potential target size
- Minimize potential target exposure time
- Complicate potential target tracking

DAMAGE LIMITATION:

- Individual protective equipment design and use
- Use of natural cover
- Use of artificial cover (incl field fortifications)
- Combat vehicle design
- Medical treatment and evacuation system
- Combat equipment cannibalisation and repair
- Alternate command and control arrangements
- Misc. efforts to maintain continued combat effectiveness of units

4. LEADERSHIP EFFECT:

TECHNICAL PROFICIENCY:

- Training
- Experience

UNDERSTANDING OF UNIT CAPABILITIES:

- Training
- Experience

ANALYTICAL SKILLS:

- Selection
- Training
- Experience

COMMUNICATION SKILLS:

Selection  
Training

DEDICATION, COMMITMENT, AND MORAL FORCE:

Selection  
Motivation  
Training

UNDERSTANDING OF BATTLEFIELD EFFECTS:

Combat experience  
Training



APPENDIX B: IPB and the TENETS OF AIRLAND BATTLE (extracts from FM 100-5 and FM 71-2)

INITIATIVE: FM 100-5: "Planning anticipates likely enemy courses of action so no time is lost in shaping the battle."<sup>140</sup>

AGILITY: FM 100-5: ". . . the ability of friendly forces to act faster than the enemy . . . rapid concentration of friendly strength against enemy vulnerabilities. . . . Friction--the accumulation of chance errors, unexpected difficulties, and the confusion of battle--will impede both sides. To overcome it, leaders must continuously 'read the battlefield,' decide quickly, and act without hesitation."<sup>141</sup>

FM 71-2: "At the task force level, agility requires . . . IPB . . . to see the battlefield, to understand likely enemy courses of action, and to aid planning. IPB gives the commander enough situationally correct information to plan--and where necessary, to act--without waiting for all information to be verified."<sup>142</sup>

DEPTH: FM 100-5: "Uncommitted enemy forces are interdicted or otherwise prevented from interfering. . . . project tactical operations deep into the enemy's vulnerable areas."<sup>143</sup>

SYNCHRONIZATION: FM 100-5: "Decision points help bring forces to bear at the decisive point."<sup>144</sup>

FM 71-2: "Synchronization [is facilitated by] using the IPB process to determine enemy time lines, named areas of interest, target areas of interest, and task force decision points."<sup>145</sup>

APPENDIX C: IPB and the AIRLAND BATTLE IMPERATIVES  
(extracts from FM 100-5)<sup>146</sup>

CONCENTRATE COMBAT POWER AGAINST ENEMY VULNERABILITIES

- \* study the enemy
- \* know his strengths and weaknesses
- \* create/exploit vulnerabilities

ANTICIPATE EVENTS ON THE BATTLEFIELD

- \* anticipate enemy actions and reactions
- \* requires "outstanding intelligence"
- \* "Anticipation and foresight are critical to turning inside the enemy's decision cycle and maintaining the initiative."

USE TERRAIN, WEATHER, DECEPTION AND OPSEC

APPENDIX D: IPB and TACTICAL DYNAMICS  
(extracts from FM 100-5)<sup>147</sup>

1. MANEUVER: "At all levels, maneuver demands . . . knowledge of the enemy and terrain."
2. FIREPOWER: "Targets must be efficiently located and identified."
3. PROTECTION: "Counter the enemy's firepower and maneuver."  
Avoid surprise.
4. LEADERSHIP: Bring dynamics 1, 2, and 3 to bear on the enemy.

APPENDIX E: S-2 SECTION AUTHORIZED STRENGTHS

	<u>POSITION</u>	<u>RANK</u>	<u>MOS</u>
TANK BN <sup>148</sup>	S2	CPT	35D
	TACTICAL INTELLIGENCE OFFICER	LT	35D
	INTELLIGENCE SERGEANT	MSG	19Z
	INTELLIGENCE ANALYST	SGT	96B
	INTELLIGENCE ANALYST	SPC	96B
MECH INF BN <sup>149</sup>	S2	CPT	35D
	INTELLIGENCE OFFICER	LT	35A
	INTELLIGENCE SERGEANT	MSG	11B
	INTELLIGENCE ANALYST	SGT	96B
	INTELLIGENCE ANALYST	SPC	96B
LIGHT INF BN <sup>150</sup>	S2	CPT	35D
	INTELLIGENCE OFFICER	LT	35A
	INTELLIGENCE SERGEANT	MSG	11B
	INTELLIGENCE ANALYST	SGT	96B
	RADIO-TELEPHONE OPERATOR	PFC	11B

**LIGHT DATA**  
**52nd Mech Division**

0800  
0600  
0400  
0200  
0001  
2200  
2000  
1800  
1600  
1400

1935	2054	2213	2333	0056
12%	19%	29%	39%	50%
1700	EENT			1705

date

## APPENDIX G: IPB PRODUCTS

Products enumerated in FM 34-130 (all page references are to that manual).

	number
Terrain Factor Overlays (p. 4-7)	
Vegetation	1
Surface Materials (soils)	1
Surface Drainage	1
Surface Configuration (slope)	1
Obstacles	1
Transportation (lines of communication (LOC))	1
Ground Water	1
Cross Country Movement	1
Transportation Maps (road and bridge information)	1+
Avenue of Approach (AA) Overlay (p. 4-8)	1
Line of Sight Overlay (LOS) (p. 4-9)	1
Canopy Closure Overlay (p. 4-11)	1
Tree Spacing and Tree Trunk Diameter Overlay (p. 4-15)	1
Stream Width, Depth, Current Speed, Bank Height, and River Bed Composition (p. 4-15)	1
Canopy Closure and Ground Vegetation Density (p. 4-15)	1
Soil Characteristics that Limit Mobility (p. 4-15)	1
Height of Vegetation or Buildings (p. 4-15)	1
Synthetic of Natural Changes to Terrain (p. 4-16)	1
Slope and Other Surface Conditions (p. 4-16)	1
Micro-relief (p. 4-16)	1

Fording Site Depth, Current Velocity, Bank Height and Angle and Soil Composition (p. 4-16)	1
Embankments, Cuts and Ditches (p. 4-16)	1
Tree Height and Canopy Closure (p. 4-16)	1
Effects of Seasonal Precipitation (p. 4-16)	
Weather Overlays (p. 4-17) (includes Built-Up Area; LOC and Hydrology; Soils; Slope; Vegetation)	5
Combined Obstacles Overlay (p. 4-19)	1
Weather Factors Analysis Matrix (p. 4-20)	
Combined Obstacles with Dry Soil	1
Obstacles Created by Wet Soil	1
Combined Obstacles With Wet Soil	1
Horizontal Line of Sight (LOS) (P. 4-24)	1
Avenue of Approach Overlay (p. 4-27)	1
Weather Overlays (p. 4-37, 4-39)	
Visibility	1
Snow Depth	1
Cloud Ceiling	1
Cloud Cover	1
Precipitation	1
Doctrinal Templates (examples for enemy attack) (pp. 2-3; 4-45,46; A-23,24)	
March	
River Crossing	
Prebattle Formation	
Attack Formation	
Envelopment	
Pursuit	
Exploitation or Consolidation	

Breakthrough

Withdrawal

Defense (Hasty and Prepared)

\* The example in FM 34-130 illustrates a U.S. division conducting a defense. Applicable templates are depicted in Figure 4-26 on page 4-47. However, this example includes enemy units from battalion to divisions. This contradicts page 4-45 which specifies analysis of units one level up and two levels down (in this case, it should be Army to Battalion). Even with this omission, the figure depicts 58 doctrinal templates in support of a single mission.

58 +

Situation Templates (doctrinal template + weather + terrain, keyed to mobility corridors) (pp. 2-3; 4-54) (at least one per doctrinal template--58 more?) \* "Each situation must therefore be analyzed, with the possibility that several templates depicting alternative dispositions may be developed for a single area." (p. 4-55)

58 +

Event Templates and Matrix (pp. 2-3, 4-54, 4-60, 4-61)

?

Decision Support Templates (DST) (p. 2-3) (multiple--cover all branches and sequels) (p. 4-54) (multiple DSTs for offensive operations) (p. 4-73)

Enemy withdrawal DST (p. A-13)

1

Friendly DST (p. A-13)

1

Enemy Defense DST (p. A-13)

1

Enemy Counterattack DST (p. A-13)

1

Air DST (p. 4-73)

1

Rear Area DST (p. 4-75)

1

Enemy Defense Weapons Systems Range Overlay (p. A-13)

1

Enemy Air Defense Weapons Systems Range Overlay (p. A-13)

1

Enemy Withdrawal Event Template (p. A-13)

1 +



Enemy Friendly Force Event Template (identifies where the enemy would place NAIs and TAIs) (p. A-13)	1 +
Enemy Counterattack Event Template (p. A-13)	1 +
GRAND TOTAL	<hr/> 166 +

APPENDIX H: FORSCOM LEADERS TRAINING PROGRAM  
ABBREVIATED COMMAND ESTIMATE PROCESS<sup>151</sup>

<u>time (minutes)</u>	<u>event</u>
-60 to 0 (during higher order)	mission analysis IPB <ul style="list-style-type: none"><li>- situation template</li><li>- time phase enemy</li></ul>
0	brief commander
0 to 30	receive cdr's guidance <ul style="list-style-type: none"><li>- preliminary PIR</li><li>- R &amp; S plan</li></ul> refine IPB
30 to 90	R & S plan
90 to 105	sit template overlay
105 to 180	DST
180 to 210	issue order
210 to 240	company/team backbriefs

APPENDIX I: CONCEPTUAL OUTLINE FOR FM 100-34, INTELLIGENCE (as of  
15 July 1991)<sup>152</sup>

- Chapter 1 - The Intelligence Mission
- Chapter 2 - The Unit Intelligence Effort
- Chapter 3 - The Intelligence Cycle
- Chapter 4 - The Directing Phase
- Chapter 5 - The Collecting Phase
- Chapter 6 - The Processing Phase
- Chapter 7 - The Dissemination Phase
- Chapter 8 - Intelligence for the Commander
- Chapter 9 - Developing Intelligence Under Time Constraints
- Chapter 10 - Developing Intelligence in Specific Tactical Situations
- Chapter 11 - Developing Intelligence at Various Echelons of Command
- Appendix A - Area Evaluation
- Appendix B - Threat Evaluation
- Appendix C - Supporting Field Manuals
- Appendix D - Glossary of Terms

## GLOSSARY

AA	avenue of approach
ALB	AirLand Battle
ALO	air liaison officer
AMSP	Advanced Military Studies Program
AO	area of operations
BAE	battlefield area evaluation
BCTP	Battle Command Training Program
BG	brigadier general
BMNT	begin morning nautical twilight
CALL	Center for Army Lessons Learned
CATA	Combined Arms Training Center
CEB	commander's examination of the battlefield
CGSC	Command and General Staff College
CINC	commander in chief
COA	course of action
COL	colonel
CPT	captain
CS	combat support
CSS	combat service support
CTAC	Center for Army Tactics
CTC	combat training center
DA	Department of the Army
DIVARTY	division artillery
DMP	decision-making process
DP	decision point
DST	decision support template
EEI	essential elements of information
EENT	end evening nautical twilight
FORSCOM	Forces Command
FLTP	FORSCOM Leaders Training Program
FM	field manual
FSCoord	fire support coordinator
FSE	fire support element
FSO	fire support officer
GEN	general
GSR	ground surveillance radar
GTA	government training aid
G2	assistant chief of staff (intelligence) -- (division or corps)
HHC	headquarters and headquarters company
IEW	intelligence and electronic warfare
IPB	intelligence preparation of the battlefield
IPT	intelligence preparation of the theater
IR	information requirements

JRTC	Joint Readiness Training Center
LOC	line of communications
LOS	line of sight
LT	lieutenant
LTC	lieutenant colonel
MCOO	Modified Combined Obstacles Overlay
MG	major general
MI	Military Intelligence
MSG	master sergeant
NAI	named area of interest
NATO	North Atlantic Treaty Organization
NTC	National Training Center
OCOKA	observation and fields of fire, cover and concealment, obstacles, key terrain, avenues of approach
OOAKOC	objective, obstacles, avenues of approach, key terrain, observation and fields of fire, cover and concealment
PFC	private first class
PIR	priority intelligence requirements
R & S	reconnaissance and surveillance
REMS	remote sensors
SAMS	School of Advanced Military Studies
SGT	sergeant
SOP	standard operating procedure
SPC	specialist
SPOTREP	spot report
ST	student text
S2	intelligence officer (brigade and lower)
S3	operations officer (brigade and lower)
TAI	target area of interest
TCDC	Tactical Commanders Development Course
TF	task force
TOC	tactical operations center
TRADOC	Training and Doctrine Command
USAICS	United States Army Intelligence Center and School
USAREUR	United States Army Europe
WW I	World War I
WW II	World War II

## ENDNOTES

1. Martin Van Crevald, Command in War (Cambridge, Mass.: Harvard University Press, 1985), 264.
2. Sun Tzu, The Art of War (New York: Oxford University Press, 1971), 129.
3. COL Mark P. Hamiltor "IPB or IPC?" Military Intelligence Magazine, Vol. 16, No. 2 (April - June 1990), 24.
4. LTG Guenther Blumentritt, "Reconnaissance," U.S. Army War College Military History Institute, Vol MS B-648 (October 1947), 19.
5. R.V. Jones, "Intelligence and Command," in Michael A. Handel. Leaders and Intelligence (Great Britain: Frank Cass and Company, 1989), 292.
6. Sun Tzu, 128.
7. Carl Von Clausewitz, On War (Princeton, New Jersey: Princeton University Press, 1976), 117.
8. Victor M. Rosello, "Clausewitz's Contempt for Intelligence," Parameters: US Army War College Quarterly, Vol. XXI, No. 1 (Spring 1991), 110-112.
9. Michael I. Handel, ed., Intelligence and Military Operations. (London: Frank Cass and Co., 1990), 67.
10. Clausewitz, 349.
11. Antoine Henri Jomini, The Art of War (West Point, Connecticut: Greenwood Press, 1892), 32.
12. Irving Heymont, Combat Intelligence in Modern Warfare (Harrisburg, Pa.: Stackpole Co., 1960), 1.
13. US Army, FM 34-80, Brigade and Battalion Intelligence and Electronic Warfare Operations (Washington, D.C.: Department of the Army, April 1986), 1-0.
14. COL Edwin E Schwien, Combat Intelligence: Its Acquisition and Transmission (Washington, D.C.: Infantry Journal Inc., 1936), 41.
15. LTG Manton S. Eddy, Commandant, CGSC, 21 July 1948, as cited in LTC Robert Risby Glass and LTC Phillip B. Davidson, Intelligence is for Commanders (Harrisburg, Pennsylvania: Military Service Publishing, 1948), iii.
16. The OCOKA factors are observation and fields of fire, cover and concealment, obstacles, key terrain and avenues of approach. The only changes since WW II are that "concealment and cover" became "cover and concealment" and "terrain objective" is now known

as "key terrain." See LTC Robert Risby Glass and LTC Phillip B. Davidson, Intelligence is for Commanders (Harrisburg, Pennsylvania: Military Service Publishing, 1948), 93.

17. MAJ George A Gaun, "Intelligence Preparation of the Battlefield," Military Intelligence Magazine, Summer 1976, 23-30.

18. Michael I. Handel, ed., Clausewitz and Modern Strategy (Great Britain: Frank Cass and Co., 1986), 68.

19. Michael I. Handel, ed., Intelligence and Military Operations, 6.

20. US Army, FM 34-80, 3-1.

21. US Army, FM 100-5, Operations (Washington, D.C.: Department of the Army, May 1986), 3, 4.

22. LTC Ricky Rowlett, Airland Battle Future briefing to SAMS students, Fort Leavenworth, Kansas, 27 August 1991.

23. Joseph D. Colanto, "Intelligence Preparation of the Battlefield for the Airland Battle," Airland Battle Doctrine (Carlisle Barracks, Pennsylvania: US Army War College, 1983), 24.

24. Glass and Davidson, ix.

25. US Army, FM 100-5, 46.

26. US Army, FM 34-80, iii.

27. US Army, Field Manual (FM) 34-1, Intelligence and Electronic Warfare Operations (Washington, D.C.: Department of the Army, July 1987), 2-1.

28. Student Text 100-9: Techniques and Procedures for Tactical Decisionmaking (Fort Leavenworth, Kansas: US Army Command and General Staff College, July 1991), 2-3.

29. US Army, FM 71-2, The Tank and Mechanized Infantry Battalion Task Force (Washington, D.C.: Department of the Army, September 1988), 2-22.

30. US Army, FM 71-2, 2-29.

31. US Army, FM 34-1, 3-3.

32. Center for Army Lessons Learned Bulletin, (Fort Leavenworth, Kansas: Combined Arms Training Activity, 1 May 1986), 8.

33. US Army, FM 34-80, 2-0.

34. US Army, FM 34-80, 1-4.

35. US Army, FM 34-1, iv.
36. US Army, FM 34-1, 2-24.
37. US Army, FM 34-130, Intelligence Preparation of the Battlefield (Washington, D.C.: Department of the Army, May 1989), 1-1.
38. US Army, FM 34-130, 6-1.
39. US Army, FM 34-80, 4-11 to 4-13.
40. Colanto, 23.
41. Handel, ed., Clausewitz and Modern Strategy, 68-69.
42. COL Huba Wass de Czege, "Understanding and Developing Combat Power," in AMSP Course 2 (Tactical Dynamics) Book 1 (Fort Leavenworth, Kansas: Command and General Staff College, 1991), 27.
43. US Army, FM 34-1, 2-4.
44. Student Text 100-9, 7-30.
45. Center for Army Lessons Learned, Observation Report #1274, 18 September 1986 (Fort Leavenworth, Kansas: Combined Arms Training Activity (CATA)).
46. GEN Glenn K. Otis and MAJ John E. Johnson, Jr., "A Commander's Perspective on the Tactical Intelligence System." Military Intelligence Magazine (April - June 1986), 21.
47. US Army, FM 34-130, 1-1.
48. US Army, FM 34-1, 1-2.
49. The following SAMS monographs argue that descriptive intelligence is preferable to predictive intelligence:  
  
Linda L. Linden, "To Predict or Not to Predict: Crossroads for Tactical Intelligence," (Monograph, School of Advanced Military Studies, November 1989).  
  
Thaden, Russell H., "Intelligence Preparation of the Battlefield and Predictive Intelligence," (Monograph, School of Advanced Military Studies, December 1986).  
  
Quirk, MAJ Richard J. III., "Seeking a Theory of Tactical Intelligence to Support the AirLand Battle," (Monograph, School of Advanced Military Studies, December 1985).
50. Schwien, v.
51. Schwien, 22.



52. Oscar Koch, G-2: Intelligence for Patton (Philadelphia: Whitmore Publishing Company, 1971), 43.
53. LTC Stedman Chandler and COL Robert W. Robb, Front-Line Intelligence (Washington, D.C.: Infantry Journal Press, 1946), 14.
54. U.S. Department of the Army, "Status of the Army Intelligence System," Staff Study, (Washington, D.C.: Office of the Assistant Chief of Staff, G2, 13 January 1954), Appendix B, Annex C, 2.
55. Student Text 100-9, 7-30.
56. MG George R. Stotser and LTC Steven J. Argersinger, "An Open Letter to MI Soldiers," in Military Intelligence Magazine (April - June 1986), 18.
57. Glass and Davidson, 62.
58. US Army, FM 34-130, 4-66.
59. US Army, FM 34-1, 2-3.
60. US Army, FM 34-80, E1.
61. US Army, FM 71-2, 2-23.
62. US Army, FM 34-80, 4-11.
63. US Army, FM 34-80, 3-15.
64. Center for Army Lessons Learned, Observation Report 1686, NTC, 2 April 1986.
65. Center for Army Lessons Learned, Battalion and Brigade Battle Staff Newsletter: Decision Making Process (Draft), (Fort Leavenworth, Kansas: Combined Arms Training Activity, 1990), i.
66. LG Wesley Clark, Commanding General, National Training Center, FLTP Welcome briefing to SAMS students, 18 September 1991.
67. Linden, 30-31.
68. MG Paul E. Menoher Jr., "Vantage Point," Military Intelligence Magazine, Vol. 16, No. 2 (April - June 1990), 2.
69. MAJ Terry B. Wilson, "Brigade Intelligence Operations: Implications for the Non-Line: Battlefield," (Monograph, School of Advanced Military Studies, March 1991), 30.
70. CPT Jacob A. Garcia, Center for Army Lessons Learned Intelligence Analyst, interview 23 October 1991.
71. National Training Center Take Home Package, Mechanized Infantry Task Force 91-2, (Fort Irwin, California: Operations Group,

1991), 143-144.

72. "Bronco Nine Speaks his Mind," a Published Interview with MAJ Steven G. Swanson, Brigade S2 Trainer and Senior Intelligence Officer of the Operations Group at the NTC, Military Intelligence Magazine Vol. 16, No. 2 (April-June 1990), 12.

73. MAJ Anthony Cerri, NTC S-3 Observer/Controller, Bn S3, Bde S3, Center for Army Tactics (CTAC) Instructor, interview by author, 4 September 1991.

74. LTC Lester W. Grau, Changing Soviet Objectives: A Reflection of Changing Combat Circumstances (Fort Leavenworth, Kansas: Soviet Army Studies Office, March 1989), 32.

75. Center for Army Lessons Learned, Observation Report No. 4404, NTC 88-01, 18 January 1989.

76. Cerri interview.

77. National Training Center Take Home Package: Mechanized Infantry Task Force 91-2 (Fort Irwin, California: Operations Group: 1991), 162.

78. National Training Center Take Home Package: Mechanized Infantry Task Force 91-2, 236-237.

79. National Training Center Take Home Package: Armor Battalion 91-2 (Fort Irwin, California: Operations Group, 1991), 310-323.

80. National Training Center Take Home Packages: Armor Battalion 91-2, 136-144.

81. Center for Army Lessons Learned, Observation Report JRTC 88-5, 8 September 1989, Index J00126.

82. National Training Center Take Home Package: Armor Battalion 91-2, 33 and Cerri interview.

83. Center for Army Lessons Learned, Observation Report No. 2892, NTC, 12 March 1987.

84. Center for Army Lessons Learned, Observation Report No. 5194, JRTC, 22 June 1989.

85. Center for Army Lessons Learned, Observation Report No. 4558.

86. MAJ John D. Rosenberger, "An Assessment of Reconnaissance and Counterreconnaissance Operations at the NTC," (Report, US Army Armor School, February 1987), 4.

87. BG John F. Stewart, "Operation Desert Storm, The Military Intelligence Story: A View from the G-2, 3d US Army." (Riyadh, Saudi Arabia: 3d US Army, April 1991), 33.

88. National Training Center Take Home Package: Aviation Squadron 91-2 (Fort Irwin, California: Operations Group, 1991), 378.
89. US Army, FM 34-1, 3-3.
90. US Army, FM 34-130, 3-1.
91. Center for Army Lessons Learned, Observation Report No. 3633, JRTC, 10 November 1988.
92. US Army, FM 71-2, 2-14 to 2-22.
93. US Army, FM 71-2, 2-22 to 2-29.
94. US Army, FM 34-1, 2-12.
95. US Army, FM 34-80, 1-4.
96. Student Text 100-9, 2-5 to 2-6.
97. US Army, FM 34-130, 3-2.
98. Center for Army Lessons Learned, Observation Report No. 5010, NTC 88-6 15 March 1989.
99. US Army, FM 34-80, 4-2.
100. US Army, FM 34-130, 3-1.
101. Otis and Johnson, 20.
102. Student Text 100-9, 3-2.
103. US Army, FM 71-2, 2-24.
104. COL James Townsend, classroom discussions, School for Advanced Military Studies, fall semester 1991.
105. US Army, FM 34-130, iii.
106. US Army, FM 34-130, 4-7.
107. US Army, FM 34-130, 4-7.
108. US Army, FM 34-130, 4-45.
109. US Army, FM 34-130, 4-47.
110. US Army, FM 34-80, 4-15.
111. US Army, Department of the Army Pamphlet (DA Pam) 25-37, Index of Graphic Training Aids (Washington, D.C.: Headquarters, Department of the Army, 1 July 1991), 22.

112. US Army, FM 34-130, 4-27.
113. CALL Bulletin, 1 May 1986, 10.
114. Center for Army Lessons Learned Bulletin, (Fort Leavenworth, Kansas: Combined Arms Training Activity, November 1989), 7.
115. Student Text 100-9, 4-8.
116. "Bronco Nine Speaks his Mind," 112.
117. US Army, FM 34-130, 4-66.
118. Cerri interview.
119. Clark briefing.
120. Center for Army Lessons Learned, Battalion and Brigade Battle Staff Newsletter: Decision Making Process (Draft), 3-4.
121. CALL Bulletin, 1 May 1986, 8.
122. Forces Command (FORSCOM) Leaders Training Program (FLTP) Handbook (Fort Irwin, California: undated), 1.
123. Hamilton, 24.
124. US Army, FM 34-130, 3-1.
125. US Army, FM 34-130, 3-1.
126. Tactical Commanders Development Course (TCDC) Battle Book--U.S. Brigade/Battalion Task Force (Fort Leavenworth, Kansas: Command and General Staff College, 1991), C2-2.
127. 1st Infantry Division (Mechanized), "Operation Desert Shield/Storm Lessons Learned," VII Corps Desert Campaign After Action Report, Vol. 11B (March 1991), 10.
128. Chandler and Robb, 19.
129. Center for Army Lessons Learned, Observation Report No. 3457, NTC, 6 July 1988.
130. Brigade Trainers Orders Guide, (Fort Irwin, California: National Training Center, February 1991), D-2-2.
131. US Army, FM 34-130, 4-69.
132. Hamilton, 25.
133. Handel, ed., Intelligence and Military Operations, 68.

134. Center for Army Lessons Learned, Observation Report No. 3193, NTC, 17 November 1987.
135. Center for Army Lessons Learned Bulletin, (Fort Leavenworth, Kansas: Combined Arms Training Activity, NOV 89), 7.
136. Schwien, v.
137. Schwien, 13.
138. Wass de Czege, 17-19.
139. US Army, FM 100-5, 15.
140. US Army, FM 100-5, 16.
141. US Army, FM 71-2, 1-5.
142. US Army, FM 100-5, 16.
143. US Army, FM 100-5, 17.
144. US Army, FM 71-2, 1-6.
145. US Army, FM 100-5, 23-24.
146. US Army, FM 100-5, 12-13.
147. US Army, Table of Organization and Equipment 17376L000, HHC, Tank Battalion, Heavy Division (Army of Excellence) (Fort Monroe, Virginia: Training and Doctrine Command, 1 APR 83), 265-267.
148. US Army, Table of Organization and Equipment 0726L00, HHC Infantry Battalion (Mechanized) Heavy Division (Army of Excellence) (Fort Monroe, Virginia: Training and Doctrine Command, 1 APR 88), 928-930.
149. US Army, Table of Organization and Equipment 07016L000, HHC Infantry Battalion, Light Division (Fort Monroe, Virginia: Training and Doctrine Command, 1 APR 84), 32-35.
150. FLTP Handbook, 12.
151. Conceptual Draft Outline for FM 100-34, Intelligence, (Fort Huachuca, AZ: US Army Intelligence Center and School, 15 July 1991).

## BIBLIOGRAPHY

### Author's Interviews

Cerri, MAJ Anthony, NTC S3 Observer/Controller, Bn S3, Center for Army Tactics (CTAC) Instructor, 4 September, 1991.

Christy, SGT Thomas, 197th Infantry Bde (M), August 1991.

Garcia, CPT Jacob A., interview 23 October 1991.

Garra, CPT Neil, Chief, Combined Arms Branch, US Army Intelligence Center and School, 21 August 1991.

Schlabach, CPT Jerry, Instructor, USAICS, 21 August 1991, 31 October 1991.

Townsend, COL James. Classroom discussions, fall semester, School for Advanced Military Studies, 1991.

### Briefings

AirLand Battle Future briefing to SAMS students by LTC Ricky Rowlett, Fort Leavenworth, Kansas, 27 August 1991.

FLTP Welcome briefing to SAMS students by BG Wesley Clark, CG, National Training Center, 18 September 1991.

IPB Briefing to incoming CGSC Class by MAJ Timothy O'Neil, Chief, Intelligence Division, US Army Intelligence Center and School, August 1991.

### Government Publications

Brigade Trainers Orders Guide. Fort Irwin, California: National Training Center, February 1991.

Center for Army Lessons Learned (CALL) Bulletins. Fort Leavenworth, Kansas: Combined Arms Training Activity:

1 May 1986

27 February 1987

8 May 1987 (Commander's Comments: The CSS Team)

Fall 1988

November 1989

October 1990 (Just Cause Lessons Learned)

Center for Army Lessons Learned (CALL). Battalion and Brigade Battle Staff Newsletter: Decision Making Process (Draft). Fort Leavenworth, Kansas: Combined Arms Training Activity, 1990.

Grau, LTC Lester W. Changing Soviet Objectives: A Reflection of Changing Combat Circumstances. Fort Leavenworth, Kansas: Soviet Army Studies Office, March 1989.

Student Text 100-9: Techniques and Procedures for Tactical Decisionmaking. Fort Leavenworth, Kansas: US Army Command and General Staff College, July 1991.

Supplemental Reading 66000-A: Intelligence Preparation of the Battlefield. Fort Huachuca, Arizona: US Army Intelligence Center and School, June 1983.

Tactical Commanders Development Course Battle Book--U.S. Brigade/Battalion Task Force. Fort Leavenworth, Kansas: Command and General Staff College, 1991.

TC 34-3, Intelligence Preparation of the Battlefield. Fort Huachuca, Arizona: US Army Intelligence Center and School, undated.

US Army. Field Manual (FM) 34-1, Intelligence and Electronic Warfare Operations. Washington, D.C.: Department of the Army, July 1987.

US Army. FM 34-3, Intelligence Analysis. Washington, D.C.: Department of the Army, March 1990.

US Army. FM 34-80, Brigade and Battalion Intelligence and Electronic Warfare Operations. Washington, D.C.: Department of the Army, April 1986.

US Army. FM 34-130, Intelligence Preparation of the Battlefield. Washington, D.C.: Department of the Army, May 1989.

US Army. FM 71-2, The Tank and Mechanized Infantry Battalion Task Force. Washington, D.C.: Department of the Army, September 1988.

US Army. FM 71-100, Division Operations. Washington, D.C.: Department of the Army, June 1990.

US Army. FM 100-5, Operations. Washington, D.C.: Department of the Army, May 1986.

US Army. FM 101-5, Staff Organization and Operations. Washington, D.C.: Department of the Army, May 1984.

US Army. FM 101-5-1, Operational Terms and Symbols. Washington, D.C.: Department of the Army, October 1985.

US Army. Table of Organization and Equipment 07016L000, HHC Infantry Battalion, Light Division. Fort Monroe, Virginia: Training and Doctrine Command (TRADOC), 1 April 1984.

US Army. Table of Organization and Equipment 072400, HHC Infantry Battalion (Mechanized) Heavy Division (Army of Excellence). Fort Monroe, Virginia: Training and Doctrine Command (TRADOC), 1 April 1988.

US Army. Table of Organization and Equipment 17376L000, HHC, Tank Battalion, Heavy Division (Army of Excellence). Fort Monroe, Virginia: Training and Doctrine Command (TRADOC), 1 April 1983.

US Army. Department of the Army Pamphlet (DA Pam) 25-37, Index of Graphic Training Aids. Washington, D.C.: Headquarters, Department of the Army, 1 July 1991.

#### Books

Chandler, LTC Stedman and COL Robert W. Robb. Front-Line Intelligence. Washington, D.C.: Infantry Journal Press, 1946.

Clausewitz, Carl Von. On War. Princeton, New Jersey: Princeton University Press, 1976.

Cohen, Eliot A. and John Gooch. Military Misfortunes: The Anatomy of Failure in War. New York: The Free Press, 1990.

Gazit, Schlomo. "Intelligence Estimates and the Decision-Maker." in Michael I. Handel. Leaders and Intelligence. Great Britain: Frank Cass and Co: 264-287.

Glass, LTC Robert Risby and LTC Phillip B. Davidson. Intelligence is for Commanders. Harrisburg, Pennsylvania: Military Service Publishing, 1948.

Handel, Michael I., ed. Clausewitz and Modern Strategy. Great Britain: Frank Cass and Co., 1986.

-----, ed. Intelligence and Military Operations. London: Frank Cass and Co., 1990.

-----, ed. Leaders and Intelligence. Great Britain: Frank Cass and Co., 1989.

Henderson, George F. Stonewall Jackson and the American Civil War. Gloucester, Massachusetts: Fawcett Publications, 1968.

Heymont, Irving. Combat Intelligence in Modern Warfare. Harrisburg, Pa.: Stackpole Co., 1960.

Jomini, Antoine Henri. The Art of War. West Point, Connecticut: Greenwood Press, 1892.

Jones, R.V. "Intelligence and Command." In Michael A. Handel. Leaders and Intelligence. Great Britain: Frank Cass and Company, 1989.

Koch, Oscar. G-2: Intelligence for Patton. Philadelphia: Whitmore Publishing Company, 1971.

Liddel Hart, B.H. Strategy. 2nd ed. New York: New American Library, 1967.



Phillips, BG T.P., ed. Roots of Strategy, Book I. Harrisburg, Pennsylvania: Stackpole Books, 1985.

Schwien, COL Edwin E. Combat Intelligence: Its Acquisition and Transmission. Washington, D.C.: Infantry Journal Inc., 1936.

Simpkin, Richard. Race to the Swift. London: Brassey's Defence Publishers, 1986.

Sun Tzu. The Art of War. New York: Oxford University Press, 1971.

Van Crevald, Martin. Command in War. Cambridge, Mass.: Harvard University Press, 1985.

#### Articles

"Bronco Nine Speaks his Mind," A Published Interview with MAJ Steven G. Swanson, Brigade S2 Trainer and Senior Intelligence Officer of the Operations Group at the NTC, Military Intelligence Magazine Vol. 16, No. 2 (April-June 1990): 3-12.

Campbell, MAJ Douglas A. "The Real IPB Doctrine," Military Review Vol. LXX, No. 10 (October 1990): 84-87.

Colvard, MAJ C.E. "Unfortunately, We Fought Like We Trained," Marine Corps Gazette Vol. 75, No. 9 (September 1991): 20-22.

Gaun, MAJ George A. "Intelligence Preparation of the Battlefield". Military Intelligence Magazine Summer 76, Fort Huachuca, Arizona: 1976.

Hamilton, COL Mark P. "IPB or IPC?" In Military Intelligence Magazine, Vol. 16 No. 2 (April - June 1990): 24-27.

Mencher, MG Paul E. Jr. "Vantage Point." In Military Intelligence Magazine, Vol. 16 No. 2, April - June 1990: 2.

Otis, GEN Glenn R. and MAJ John E. Johnson, Jr. "A Commander's Perspective on the Tactical Intelligence System." In Military Intelligence Magazine, April - June 1986: 19.

Rosello, Victor M. "Clausewitz's Contempt for Intelligence." In Parameters: US Army War College Quarterly, Vol. XXI, No. 1, Spring 1991: 103-114.

Stotser, MG George R. and LTC Steven J. Argersinger. "An Open Letter to MI Soldiers." In Military Intelligence Magazine, April - June 1986: 18-19.

Van Riper, BG Paul K. "Observations During Operation Desert Storm." In Marine Corps Gazette, Vol. 75., No. 6, June 1991: 55-61.

Unpublished Dissertations, Theses and Papers

Adelman, L., M.L. Donnel, and R.H. Phelps. "Intelligence Preparation of the Battlefield: Critique and Recommendations." Army Research Institute Study, March 1984.

Blumentritt, LTG Gunther. "Reconnaissance." US Army War College Military History Institute, Vol MS B-648, October 1947.

Center for Army Lessons Learned (CALL). Observation Reports, dated 5 November 1985 to 23 May 1991 (573 total). Fort Leavenworth, Kansas: Combined Arms Training Activity (CATA).

Colanto, Joseph D. "Intelligence Preparation of the Battlefield for the Airland Battle," In Airland Battle Doctrine. Carlisle Barracks, Pennsylvania: US Army War College, 1983.

Combined Arms Branch Proposal for the Restructuring of MI Field Manuals. Fort Huachuca, Arizona: US Army Intelligence Center and School, 15 July 1991.

Conceptual Draft Outline for FM 100-34, Intelligence. Fort Huachuca, AZ: US Army Intelligence Center and School, 15 July 1991.

1st Infantry Division (Mechanized). "Operation Desert Shield/Storm Lessons Learned." VII Corps Desert Campaign After Action Report, Vol. 11B, March 1991.

Forces Command (FORSCOM) Leaders Training Program Handbook (FLTP). Fort Irwin, CA: undated.

The Intelligence Cycle Down and Dirty (draft). Fort Huachuca, Arizona: USAICS Military Intelligence Officers Advanced Course (MIOAC). 8 October 1991.

Koury, Robert R. "Intelligence Preparation of the Battlefield at Lower Level Staffs: A Proposal for IPB at Brigade and Battalion." Paper, Naval War College, February 1988.

Linden, Linda L. "To Predict or Not to Predict: Crossroads for Tactical Intelligence." Monograph, School of Advanced Military Studies, November 1989.

Lynch, MAJ Timothy D. "Problem-Solving Under Time Constraints: Alternatives for the Commander's Estimate." Monograph, School of Advanced Military Studies, November 1989.

National Training Center (NTC) Take Home Packages. Fort Irwin, California: Operations Group:

Armor Battalion 91-2  
Aviation Squadron 91-2  
Mechanized Infantry Task Force 91-2

Quirk, MAJ Richard J. III. "Seeking a Theory of Tactical Intelligence to Support the AirLand Battle." Monograph, School of Advanced Military Studies, December 1985.

Rodriguez, MAJ Guillermo A. "Intelligence Preparation of the Battlefield--Is it Worth the Effort?" Monograph, School of Advanced Military Studies, January 1991.

Rosenberger, MAJ John D. "An Assessment of Reconnaissance and Counterreconnaissance Operations at the NTC." Report, US Army Armor School, February 1987.

Stewart, BG John F. "Operation Desert Storm, The Military Intelligence Story: A View from the G-2, 3d US Army." Riyadh, Saudi Arabia: 3d US Army, April 1991.

Thaden, Russell H. "Intelligence Preparation of the Battlefield and Predictive Intelligence." Monograph, School of Advanced Military Studies, December 1986.

US Department of the Army. "Status of the Army Intelligence System." Staff Study. Washington: D.C.: Office of the Assistant Chief of Staff, G2, 13 January 1954.

Wass de Czege, COL Huba. "Understanding and Developing Combat Power." In AMSP Course 2 (Tactical Dynamics) Book 1. Fort Leavenworth, Kansas: Command and General Staff College, 1991.

Wilson, MAJ Terry B. "Brigade Intelligence Operations: Implications for the Non Linear Battlefield." Monograph, School of Advanced Military Studies, March 1991.